

Remarks

Claims 163-195 are pending in the Application.

Claims 165, 167-169, and 175-195 are cancelled without prejudice.

Claims 163, 164, 166 and 170-174 are rejected.

I. RESTRICTION UNDER 35 U.S.C. § 121

Examiner has restricted Claims into six Groups. On March 9, 2004, Applicant responded to the Office Action having a mailing date of February 12, 2004 ("Restriction Requirement"), having a shortened statutory period for response set to expire on March 12, 2004, and provisionally elected to continue prosecution of Group I (Claims 163-164, 166, and 170-174) without traverse. Claims 165, 167-169, and 175-195 are withdrawn from consideration and have been cancelled herein without prejudice.

II. REJECTIONS UNDER 35 U.S.C. § 102(a)/ § 103(a) OVER SEN

Examiner has rejected Claims 163, 164, 166 and 170-174 under 35 U.S.C. § 102(a) as being anticipated by or in the alternative, under 35 U.S.C. § 103(a) as obvious over Sen et al., *Fullerene Science and Technology*, 5(3), 489-502 (1997), ("Sen"). Office Action at 2.

Examiner contends that the "reference teaches on pg. 495, 496 cut nanotubes. SWNTs are depicted, however, the discussion is general and it is possible that the pictures are a simplification. Cutting SWNTs is an obvious expedient to gain the functionalization and subsequent reactivity/solubility desired. In so far as claims 173, 174 require anything beyond nanotubes, then using SWNTs in a battery/fuel cell is an obvious expedient to exploit their electrical properties." Office Action at 2.

Applicant respectfully traverses these rejections. *Sen* is not prior art for the claims of the present Application; thus, these rejections are improper and must be withdrawn.

The present Application is a divisional of a co-pending parent application Serial No. 09/380,545, filed on March 6, 1999, now United States Patent 6,683,783 issued January 27, 2004, which is the 35 U.S.C. § 371 national application of International Application Number PCT/US98/04513 filed on March 6, 1998, which designated the United States, claiming priority to provisional U.S. patent application Serial Number 60/067,325 filed on December 5, 1997, provisional U.S. patent application Serial Number 60/064,531 filed on November 5, 1997, provisional U.S. patent application Serial Number 60/063,675 filed on October 29, 1997, provisional U.S. patent application Serial Number 60/055,037 filed on August 8, 1997, provisional U.S. patent application Serial Number 60/047,854 filed on May 29, 1997, and provisional U.S. patent application Serial Number 60/040,152 filed on March 7, 1997. Thus, as a result of this claiming of priority, the present Application has at least an effective filing date of these provisional application filings.

As an initial matter, *Sen* was published in *Fullerene Science and Technology* in April, 1997, after the filing of the Applicant's provisional U.S. patent application Serial Number 60/040,152 filed on March 7, 1997 ("the '152 provisional application"). A copy of the Table of Contents and associated documentation regarding the publication date of *Sen* are given in Exhibit A.

Regarding Claims 163, 164, 166 and 170-174, the elements of the claims (including purified and cut single-wall carbon nanotubes, and their applications in molecular wires, quantum devices, integrated circuits, RF shielding devices, microwave absorbing materials, hydrogen storage devices, battery and fuel cells and the other elements in the claims of the present Application are fully supported by the '152 provisional application.¹ Thus, such supported pending claims have an effective filing date of March 7, 1997. *See* M.P.E.P. § 706.02.

¹ Support in the '152 provisional application for cut single-wall carbon nanotubes can be found in the '152 provisional application on pages 9-13. This support includes "applications involving the individual tubular molecules per se (e.g., derivatives, nanoscale conductors in quantum devices, i.e., molecular wire)." '152 provisional patent application, page 10. For support respecting integrated circuits, see, for example, page 13 of the '152 patent application. Moreover, support for using the materials "in RF shielding applications, e.g., to make microwave absorbing materials" is found, for example, at page 14 of the '152 patent application. For support for hydrogen storage devices, battery and fuel cell devices, see page. 14 of the '152 provisional application. For further support of batteries, see page 21 and pages 37-38 of the '152 provisional application.

This effective filing date is before the publication date of *Sen*. Consequently, *Sen* cannot be prior art to such claims under 35 U.S.C. § 102(a) or 35 U.S.C. § 103(a).

Applicant understands the Examiner may assert one or more of the claims of the present Application is not fully supported by the '152 provisional application because, in Examiner's view, each of those claims includes a feature not disclosed in the '152 provisional application. While Applicant would traverse such an assertion, to the extent such assertions could be made, Applicant notes that any such allegedly missing features of the dependent claims would likewise not be found in *Sen*. Under such circumstance, *Sen* would again not be prior art. See M.P.E.P. § 715.02.

Therefore, in view of the foregoing, Applicant respectfully requests that the Examiner withdraw his rejection of Claims 163, 164, 166 and 170-174 under 35 U.S.C. § 102(a) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over *Sen*.

IV. CONCLUSION

As a result of the foregoing, it is asserted by Applicant that the Claims in the Application are now in a condition for allowance, and respectfully request allowance of such Claims.

Applicant respectfully requests that the Examiner call Applicant's attorney at the below listed number if the Examiner believes that such a discussion would be helpful in resolving any remaining problems.

Respectfully submitted,

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FULLERENE SCIENCE AND TECHNOLOGY

April 1997

Aims and Scope. A new international and interdisciplinary forum, *Fullerene Science and Technology*, aims at publishing peer-reviewed research of original work in all areas of fullerene research. Publishing high quality papers from all fields of scientific inquiry related to fullerenes, the journal intends to provide a means of communication between researchers who are interested in fundamental and applied fullerene science issues.

Identification Statement. *Fullerene Science and Technology* (ISSN: 1064-122X) is published seven times a year in January, March, April, June, August, October, and December for the institutional rate of \$595.00 and the individual rate of \$297.50 by Marcel Dekker, Inc., P.O. Box 5005, Monticello, NY 12701-5185.

Volume	Issues	Individual		Foreign Postage	
		Institutional	Professionals'	Airmail	Airmail
		Rate	Rate	Surface	to Asia
5	7	\$595.00	\$297.50	\$26.25	\$38.50
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CODEN: FTECEG 5(3) i-iv, 489-628 (1997)

ISSN: 1064-122X

Printed in the U.S.A.

FULLERENE SCIENCE AND TECHNOLOGY

An International and Interdisciplinary Journal

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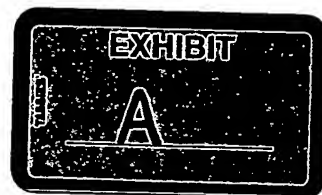
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FULLERENE SCIENCE AND TECHNOLOGY

Volume 5, Number 3, 1997

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from within various parts of the book. A specially interesting feature of the book is that it integrates the discussion of C_{60} , C_{70} and all relevant, smaller and larger members of the fullerene family with the tubular and onion-like larger fullerene-reminiscent structures; the tubules and spherules. Following the initial research on the fullerenes themselves, these latter forms of carbon belong nowadays to the most intensively researched area. The obvious reason for this is that important applications are expected from tubules in nanotechnology. The present book is perhaps the only one that integrates all fullerene-related structures.

One of the many laudable aspects of this new book is the very fundamental approach it takes to fullerene structures. For example the application of symmetry principles to the geometrical, mechanical and electronic properties is an important characteristic, and it has been done in an eminently readable fashion. One should not forget that, for example, icosahedral symmetry is a relative newcomer to molecular physics, almost completely neglected prior to the emergence of fullerene science.

As the present reviewer is a molecular spectroscopist it is perhaps forgivable that spectroscopic aspects were of foremost importance for him.

This book is a formidable treasure house for vibrational and electronic spectroscopists interested in fullerenes, e.g. it contains extensive details on the role of isotopic substitution effects in very cold gas-phase spectra of C_{60} . Unfortunately from this point of view almost none of the recent developments about astrophysical implications of fullerenes is covered.

About the uses of fullerenes, being developed and contemplated for the future, perhaps the most fascinating ones are in optics and electronics, or for that matter, in optoelectronics. The reviewer feels that a practical breakthrough in fullerene applications will ensue soon in these fields. The book certainly induces one to believe that.

There can be no doubt that, as the back cover of the book states, this work will become a landmark reference in fullerene science. The price of the hard bound edition is US \$ 130.00, the high quality and the "feel" of the book is typical for Academic Press products. It is highly recommended for chemists, physicist and material scientists alike, and it could serve as well as educational-tutorial material for courses on fullerenes at the academia or industry.

Laszlo Nemes

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